

WHAT IS CLAIMED IS:

1. An image pickup apparatus comprising:

 lens group drive means for driving a lens
group to thereby adjust every focal point of said lens
5 group;

 image pickup means for image picking-up one
and the same subject to generate a plurality of screens
adjacent temporally and different in exposure
condition, said plurality of screens being synthesized
10 to form a synthesized image;

 means for detecting focal voltages from said
plurality of screens and storing said detected focal
voltages, said focal voltages containing high-frequency
components included in said plurality of screens; and

15 focal voltage selecting means for selectively
outputting one of said stored focal voltages on the
basis of a predetermined selection criterion;

 wherein automatic focusing is carried out in
accordance with said focal voltage outputted from said
20 focal voltage selecting means.

2. An image pickup apparatus according to Claim
1, wherein normalization processing is carried out on
each of said focal voltages detected from said
plurality of screens adjacent temporally and different
25 in exposure condition so that an influence of variation
in said exposure condition on said focal voltages is
eliminated.

3. An image pickup apparatus according to Claim

- 1, wherein in said automatic focusing, said focal voltage selecting means keeps on outputting said focal voltage outputted at the time of starting to drive said lens group in a period from starting of drive of said lens group to conclusion of reaching focus to thereby stop moving said lens group.
4. An image pickup apparatus according to Claim 1, wherein said focal voltage selecting means selectively outputs a focal voltage for focusing in accordance with magnitudes of said stored focal voltages inputted to said focal voltage selecting means.
5. An image pickup apparatus according to Claim 1, wherein said focal voltage selecting means selectively outputs a focal voltage for focusing on the basis of comparison among luminance level frequency distributions belonging to said screens respectively associated with said stored focal voltages inputted to said focal voltage selecting means.
- 20 6. An image pickup apparatus according to Claim 1, wherein said focal voltage selecting means varies said selection criterion in accordance with luminance level frequency distributions belonging to said screens respectively associated with said stored focal voltages inputted to said focal voltage selecting means.
- 25 7. An image pickup apparatus according to Claim 1, wherein:
- said means for storing said focal voltages

- detected from said plurality of screens extracts specific areas from said plurality of screens to be focused, on the basis of information of luminance level distributions expressing characteristics of said
- 5 subject, or on the basis of information of substitute areas or a synthesizing ratio in synthesis, or on the basis of a combination of said information of luminance level distributions and said information of substitute areas or a synthesizing ratio, said information of
- 10 luminance level distributions being obtained from said plurality of screens adjacent temporally and different in exposure condition, said information of substitute areas or a synthesizing ratio being obtained when said synthesized image is generated; said means detects
- 15 focal voltages from said extracted specific areas of said plurality of screens; and said means stores said detected focal voltages.
8. An image pickup apparatus according to Claim 1, wherein when said exposure condition associated with
- 20 said focal voltage outputted from said focal voltage selecting means varies, an offset from the focal point is calculated again, and a series of control in a period from starting of drive of said lens group to stopping of the drive when a focused point is detected
- 25 is performed again.
9. An image pickup apparatus comprising:
- lens group drive means for driving a lens group to thereby adjust every focal point of said lens

group;

image pickup means for image picking-up one
and the same subject to generate a plurality of screens
adjacent temporally and different in exposure

- 5 condition, said plurality of screens being synthesized
to generate a synthesized image;

means for cutting out predetermined-sized
areas from said plurality of screens respectively;

- means for detecting focal voltages, which are
10 high-frequency components contained in said areas cut
out from said plurality of screens, and for storing
said detected focal voltages; and

- focal voltage selecting means for comparing
said stored focal voltages, and selectively outputting
15 one of said focal voltages on the basis of a
predetermined selection criterion;

wherein automatic focusing is carried out in
accordance with said focal voltage outputted from said
focal voltage selecting means.

- 20 10. An image pickup apparatus according to Claim
9, wherein normalization processing is carried out on
each of said focal voltages detected from said areas
cut out from said plurality of screens adjacent
temporally and different in exposure condition so that
25 an influence of variation in said exposure condition or
said cut-out area on said focal voltages is eliminated.

11. An image pickup apparatus according to Claim
9, wherein in said automatic focusing, said focal

voltage selecting means keeps on outputting said focal voltage outputted at the time of starting to drive said lens group in a period from starting of drive of said lens group to conclusion of reaching focus to thereby

5 stop moving said lens group.

12. An image pickup apparatus according to Claim 9, wherein said focal voltage selecting means selectively outputs a focal voltage for focusing in accordance with magnitudes of said stored focal 10 voltages inputted to said focal voltage selecting means.

13. An image pickup apparatus according to Claim 9, wherein said focal voltage selecting means selectively outputs a focal voltage for focusing on the 15 basis of comparison among luminance level frequency distributions belonging to said areas cut out from said screens respectively associated with said stored focal voltages inputted to said focal voltage selecting means.

20 14. An image pickup apparatus according to Claim 9, wherein said focal voltage selecting means varies said selection criterion in accordance with luminance level frequency distributions belonging to said areas cut out from said screens respectively associated with 25 said stored focal voltages inputted to said focal voltage selecting means.

15. An image pickup apparatus according to Claim 9, wherein when said exposure condition or said cut-out

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area associated with said focal voltage outputted from
said focal voltage selecting means varies, an offset
from the focal point is calculated again, and a series
of control in a period from starting of drive of said
5 lens group to stopping of the drive when a focused
point is detected is performed again.